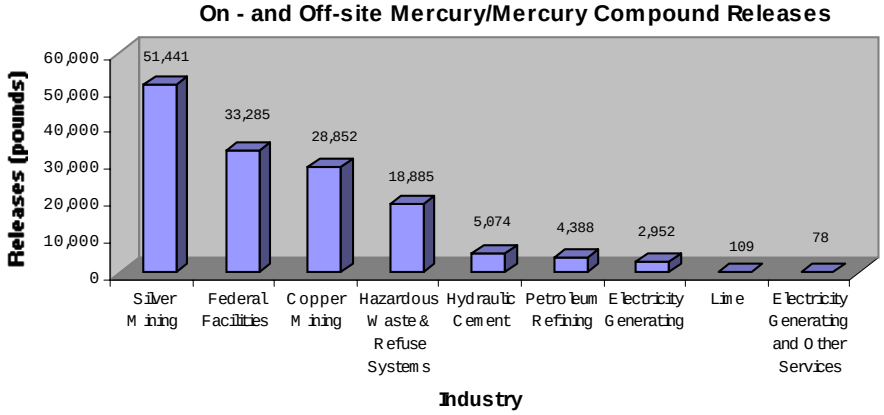
Mercury Report: 2001 Toxics Release Inventory

U.S. EPA Region 9
Arizona, California, Hawaii, Nevada, and the Pacific Islands

a)



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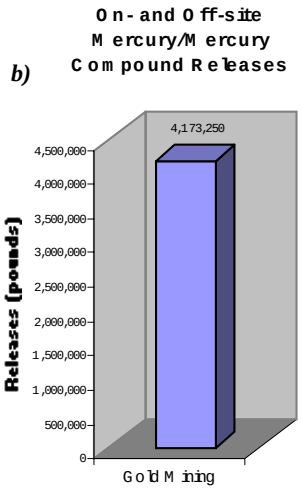
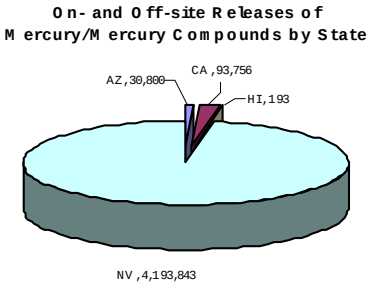


Note: On- and off-site releases is defined as the amount of toxic chemical releases on-site (to air, water, underground injection, landfills and other land disposal), and the amount transferred off-site for disposal. Chart **a** shows lead releases (in pounds) for the top industries, excluding the gold mining industry. Releases from the gold mining industry are shown in chart **b**. Charts **a** and **b** show combined totals for the entire region, AZ, CA, HI, NV. Chart **c** gives state totals for on- and off-site mercury/mercury compound releases (in pounds).

c)



The 2001 TRI Data for Mercury and Mercury Compounds

EPA has just made public the 2001 data on toxic chemicals that were released* to the air, water and land within the Pacific Southwest region. This information comes from the Toxics Release Inventory (TRI), a federal community right-to-know program.

Starting in the year 2000, the TRI was expanded to include additional persistent, bioaccumulative and toxic (PBT) chemicals, and required reporting for these chemicals at lower thresholds. PBT pollutants are toxic chemicals that persist in the environment and bioaccumulate in food chains, thus posing risks to human health and ecosystems. While mercury and mercury compounds have been on the list of reportable chemicals since 1987, for the year 2000 the reporting threshold was drastically lowered (to 10 pounds manufactured, processed, or otherwise used), and this change has resulted in more comprehensive release information for these compounds.

**Release is defined as the amount of a toxic chemical released on-site (to air, water, underground injection, landfills and other land disposal), and the amount transferred off-site for disposal.*

It is important to note that release cannot be directly equated with risk. To evaluate risk, release data must be combined with information about chemical toxicity, site-specific conditions, and exposure. In addition, this data does not indicate whether a facility is violating environmental laws. Many of the substances reported through this program are subject to state and federal regulations designed to protect human health and the environment.

Industries

Manufacturing industries have been reporting their releases since 1987 and federal facilities started reporting in 1994. In 1998, seven additional industry sectors began reporting their toxic chemical releases for the first time. These sectors are metal and coal mining, electricity generation, commercial hazardous waste treatment, solvent recovery, petroleum bulk terminals, and wholesale chemical distributors.

Releases

The TRI data for 2001 shows that, with the exception of Hawaii, Region 9 states rank higher than most states in the U.S. for releases of mercury and mercury compounds. In a state-by-state comparison Nevada, California, Arizona and Hawaii ranked 1, 3, 7 and 48, respectively for total on- and off-site releases of mercury and mercury compounds. Nno mercury releases were reported in Region 9's Pacific island territories. The table below gives the total pounds of mercury and mercury compounds reported in Region 9:

Mercury/Mercury Compound Releases (in pounds) by State

State	*Air*	*Water*	*Land*	*Under-ground Injection*	*Off-site Release*	*Total On- and Off-site*
AZ	1,573	0	30,603	0	197	30,800
CA	5,668	10	54,683	0.6	39,073	93,756
HI	114	4	120	2	73	193
NV	12,959	1	4,192,527	0.1	1,316	4,193,843

Reporting Industry Sectors–the 2001 Data

A review of the TRI data suggests that approximately 99% of mercury releases in the Region come from the metal mining industry. The other 1% is mostly attributed to hazardous waste treatment facilities, the cement, lime and glass industry, electricity generators and petroleum refineries. A detailed summary of releases by industry sector is provided in the table below.

Mercury/Mercury Compound Releases (in pounds) by Industry Sector

Industry	*Air*	*Water*	*Land*	*Off-site Release*	*Total On- and Off-site*
Gold Mining	12,067	1	4,159,905	1,307	4,173,250
Silver Mining	378	0	51,064	0	51,441
Federal Facilities	45	0	0	33,240	33,285
Copper Mining	245	0	28,568	38	28,852
Hazardous Waste & Refuse Systems	6	1	16,752	2,126	18,885
Hydraulic Cement	4,825	0	249	0	5,074
Petroleum Refining	702	13	0	3,671	4,388
Electricity Generating	1,970	0	901	81	2,952
Lime	17	0	92	0	109
Electricity Generating and Other Services	10	0	0	68	78

Metal Mining

In the Pacific Southwest Region, 31 metal mines reported over 4 million pounds of on-site mercury and mercury compound releases, most of which were released on-site to land. Mercury and mercury compounds may be processed as a trace constituent in metal ores or recovered as a by-product from gold ores. Many mines extract, move, store, process, and dispose of large amounts of waste rock and ore--materials which often contain low concentrations of naturally occurring metals. The vast majority of this material is placed in surface impoundments or on the land, and the metals are reported as on-site releases to land. This previously buried material is exposed to potential leaching by rain, snow, and acid mine drainage, and must be carefully managed and monitored to prevent any surface water or groundwater contamination.

There are also air releases from ore processing and metal refining operations. For air releases of mercury and mercury compounds, four copper mines reported a total of 245 pounds; two silver mines reported 378 pounds, and 25 gold mines reported a total of 12,067 pounds.

Hazardous Waste Treatment

Nine hazardous waste treatment facilities reported

disposing 16,752 pounds of mercury and mercury compounds into on-site landfills and 6 pounds to the air.

Cement Manufacturing
Mercury may be processed or otherwise used as a trace element in raw materials and fuels in the manufacture of Portland cement. Fourteen cement manufacturing facilities reported 5,074 pounds of on-site mercury and mercury compounds releases, of which 4,825 pounds were released to the air, and 249 pounds released on-site to land.

Electricity Generation
Twenty electricity generating facilities reported 2,880 pounds of on-site mercury releases. Only facilities that burn coal or oil to generate electricity commercially need to report to the Toxics Release Inventory. Mercury compounds may be formed during the combustion process.

Refineries
Twenty petroleum refineries reported 715 pounds of on-site mercury releases. Mercury may be processed or otherwise used as trace components in crude oil.

Top Region 9 Counties for On-site Releases in 2001

County	*State*	*On-site Release (pounds)*
Elko	Nevada	2,044,194
Eureka	Nevada	1,063,480
Humboldt	Nevada	920,076
Lander	Nevada	94,927
Pershing	Nevada	35,421
Lake	California	32,396
White Pine	Nevada	27,001
Gila	Nevada	16,674
Kings	California	12,366
Yavapai	Arizona	5,322

Top Facilities for Releases

The top 10 facilities for total on- and off-site releases in Region 9 are:

Ø Barrick Goldstrike Mines Inc. (1,974,050 pounds) Elko, Nevada, Elko County
ÙNewmont Mining Corp. Twin Creeks Mine (810,604 pounds) Golconda, Nevada, Humboldt County
Ú Newmont Mining Corp. Carlin South Area (750,608 pounds) Carlin, Nevada, Eureka County
Û Newmont Mining Corp. Carlin North Area (300,034 pounds) Carlin, Nevada, Eureka County
Ü Newmont Mining Corp. Lone Tree Mine (87,005 pounds) Valmy, Nevada, Humboldt County
Ý Cortez Gold Mines Pipeline Processing Plant Mill #2 (78,503 pounds) Crescent Valley, Nevada, Lander County
ò Jerritt Canyon Joint Venture (69,791 pounds) Elko, Nevada, Elko County
óCoeur Rochester Inc. (35,017 pounds) Lovelock, Nevada, Pershing County
ô U.S. Naval Air Weapons Station (33,285 pounds) China Lake, California, Kern County
õ McLaughlin Mine (32,396 pounds) Lower Lake, California, Lake County

On-line Access

For national information on data release, see:
http://www.epa.gov/tri

The TRI data is available through the Envirofacts Warehouse, EPA's premier Internet site for distributing environmental information at:
http://www.epa.gov/enviro

or the TRI Explorer tool:
http://www.epa.gov/triexplorer

For general information on the Toxics Release Inventory, including reporting requirements for businesses, go to:
http://www.epa.gov/region09/toxic/tri

Information and Assistance

We will be more than happy to answer your questions and assist you in learning more about the Toxics Release Inventory program in Region 9.

U.S. EPA Region 9 TRI Coordinator
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